



Marlene H. Dortch, Secretary  
Federal Communications Commission  
Office of the Secretary  
445 12<sup>th</sup> Street, SW, Room TW-B204  
Washington D.C. 20544

Re: Comments regarding FCC Notice of Proposed Rulemaking (Proceedings 18-120)

Dear Secretary Dortch,

I was deeply involved in the development of software-defined networking both as a researcher and later as a technologist when I co-founded Nicira. Now I am a general partner at Andreessen Horowitz. I also grew up in Flagstaff Arizona, near Four Corners, and have seen first-hand the educational and economic disparities caused by the rural digital divide. So, I founded Mural Net, a nonprofit that works with tribal entities, libraries and schools in rural areas to provide high-speed internet access to their students at home.

With the advent of cheap, reliable LTE equipment and open-source, software-defined networking Evolved Packet Core (SDN EPC) platforms that have cloud management and orchestration layers, communities can easily build and control their own high-speed internet networks. Mural Net leverages these technologies to connect students to our partner's existing backhaul. However, access to the 2.5 GHz band is a necessary component of our model.

The Havasupai Tribal Council<sup>[1]</sup> worked with us to connect their K12 and Head Start students and teachers to high-speed internet using EBS spectrum reserved for education. In fact, last month their network was expanded such that every household could have high-speed internet if the FCC grants their application for a permanent license. Independent of Mural, Bad River Band of the Lake Superior Tribe of Chippewa Indians and Coeur d'Alene Tribe can do the same immediately if their tribally-affiliated ISPs could use the EBS spectrum.<sup>[2],[3]</sup> Mural Net has several interested tribes in queue. We are simply waiting to hear the FCC's decision regarding the future of unlicensed spectrum.

Locally run networks are bridging the rural digital divide now. They are fueled by affordable, carrier-grade equipment, cloud-based operations portals and a strong



commitment to improving the quality of life of their own community. And the model is scalable. Access to spectrum is the current roadblock preventing many of these communities from the opportunities afforded by high-speed internet. Because of this, I advocate for

- priority windows for tribal entities and schools to obtain licenses in the 2.5 GHz band,
- channels to cover 20 MHz of contiguous bandwidth to meet current technological needs and maximize band use and
- keeping a large portion of the EBS spectrum reserved for educational uses.

Respectfully submitted,

Martin Casado, PhD  
GP AndreessenHorowitz  
Co-Founder Nicira Networks  
Co-Founder Mural Net

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[1] Havasupai Tribal Council, FCC Comment on Proceeding 18-120, ¶ 5 (May 31<sup>st</sup>, 2018)  
<https://ecfsapi.fcc.gov/file/10621163005692/18060021-12.pdf>

[2] FCC Comment of Ernest L. Stengar, Chairman of the Coeur D'Alene Tribe, FCC Comment on Proceeding 18-120, ¶ 2 (August 8<sup>th</sup>, 2018)  
<https://ecfsapi.fcc.gov/file/10808053916617/Docket%2018-120%20FCC%20Comments%208-8-2018.pdf>

[3] Bad River Band of the Lake Superior Tribe of Chippewa Indians, FCC Comment on Proceeding 18-120, ¶ 4 (August 8<sup>th</sup>, 2018)  
<https://ecfsapi.fcc.gov/file/108080495126110/Bad%20River%202.5%20GHz%20NPRM%20Comments%200-%20FINAL%208.8.2018.pdf>